

REMARKS

The Applicant thanks the Examiner for indicating that claims 25, 28-32 and 39 would be allowable if rewritten to overcome the rejections under 35 U.S.C. § 112, second paragraph, and to include all of the limitations of the base claim and any intervening claims. As noted in the amendments above, the corresponding claims are rewritten as new claims 44, 46, 49, 50 and 55 and thus these new claims are now believed to be allowable.

The drawings are objected to for the reasons noted in the official action. All of the raised drawing objections are believed to be overcome by the requested drawing amendments accompanying the attached Submission. The double clutch is now shown in FIG. 1 by the diagrammatic structure as indicated by reference number 43. As this subject matter was clearly disclosed in the specification at least at paragraph 057 as amended above, such a diagrammatic representation of the double clutch is not believed to any raise issues of new matter. Also, the Applicant notes that the specification and drawings clearly disclose the synchronization device 10 in FIG. 1 and discussed at least at paragraph 047 of the present specification. New Replacement Sheets of formal drawing(s), accompany this Submission, and incorporate all of the requested drawing amendment(s). If any further amendment to the drawings is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

Claims 22-42 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons noted in the official action. The rejected claims are accordingly rewritten by the above new claims and the presently pending claims are now believed to particularly point out and distinctly claim the subject matter regarded as the invention, thereby overcoming all of the raised § 112, second paragraph, rejections.

Claims 22, 26, 33, 34, 35, 37, 40 and 42 are rejected, under 35 U.S.C. § 102(b), as being anticipated by Ranson et al. '351. The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the above new claims and following remarks.

Ranson et al. '351 specifically relates to an electronic control 15 for controlling an electric motor 13 to assist the propeller shaft 20, or output shaft, of the transmission 12 during "overshoot" and "undershoot" conditions. In such conditions Ranson et al. '351 is particularly concerned with the problem of torsional stresses, "...when a sudden change in driving torque is generated by the internal combustion engine or through a sudden rearrangement of the clutch a considerable amount of *windup* occurs in the driveline between engine and the road wheels which can have a detrimental effect on driveline refinement." The "windup" as discussed in paragraph 004 on page 1 of Ranson et al. '351 directly relates to the torsional stresses and torsional vibrations which occur through the driveline components located between the engine and the road wheels.

These torsional stresses or vibrations occur through the drive train when there is too much transferred torque from the engine 10 to the propeller shaft 20 (overshoot), and they will also occur when not enough torque is transferred from the engine 10 to the propeller shaft 20 (undershoot) which can, in essence, produce a negative windup through the components of the drive train again causing substantial torsional stress and vibration on these driveline components. As noted in paragraph 006 on page 4 of Ranson et al. '351 "The effect of this use of the electric motor 13 as an active damper is shown in Fig. 4C by the line "B" in comparison with the underdamped response shown by the line A." In other words, the motor 13 is an active damper for speeding up the propeller shaft 20 as a motor in undershoot conditions to reduce these driveline oscillations and vibrations, and acts as generator in overshoot conditions i.e. a brake in overshoot conditions depending on the perceived torque differentials.

With respect to Applicant's claim 26, the subject matter of which is combined with previous claim 22 as new claim 45, the Applicant notes that this claim includes the step of "...arranging an abrasion-free *permanent brake* actuated by the control and regulating device behind a transmission such that with a rise in the vibration amplitude of the disturbing vibration, the permanent brake brakes a rotational speed of wheel drive shafts...." In the Abstract of the invention in Ranson et al. '351 it is recited that "...through a propeller shaft 20 an electric motor 13 is provided to supply or absorb torque from the propeller shaft to reduce oscillations in the drive line caused by rapid torque changes." Obviously, the motor 13, because it is used as both a motor or a generator, cannot be a "permanent brake" as specifically recited in the presently pending claim 26. Thus, as the Examiner is aware, in order to properly support an anticipation rejection under 35 U.S.C. § 102(b), the reference must disclose each and every feature of the presently claimed invention. As the motor 13 which supplies torque to the shaft 20 as disclosed in Ranson et al. '351 cannot be a permanent brake as specifically recited in Applicant's claim 45, this new claim 45 is thus believed to be allowable.

Additionally, with respect to previous claim 33, now combined with the subject matter of previous claim 22 as new claim 51, the Applicant notes that claim 51 includes the specific step of, "....ascertaining motor vehicle acceleration by the control and regulating device with aid of a sensor unit that recognizes longitudinal acceleration." In other words, in the Applicant's present invention, besides the rotational speed sensors 34, 36 on the clutch input and output sides, there is further data ascertained by the control and regulation device via a longitudinal acceleration sensor 41, as shown in Applicant's Fig. 1 and described at paragraph 043.

A thorough review of Ranson et al. '351 fails to disclose any sort of longitudinal acceleration sensor as indicated on page 8, lines 1 and 2 of the official action. Observing the noted paragraphs in lines 1 through 7 on page 4 of Ranson et al. '351, the Applicant notes that there are disclosed a series of torque transducers 30, 29, 33, 34 and 35 positioned throughout

the driveline of the cited reference. Torque, or rotational sensors measure the torque and shear stresses placed on for example rotating shafts due to rotational loading. Such torque sensors have little if anything to do with the measurement of vehicle acceleration and while they may potentially provide some data which could be indirectly relative to theoretical vehicle acceleration, torque sensors do not directly measure longitudinal acceleration of the vehicle as recited in claim 51. A thorough review of the reference again reveals no disclosure, teaching or suggestion as required by case law that such a longitudinal sensor is used, or would even be useful in the system of Ranson et al. '531 and therefor Applicant's new claim 51 cannot be anticipated by the cited reference.

Similarly, with respect to claim 37 which has also been combined with the subject matter of previous claim 34, and now rewritten as new claim 53, Ranson et al. '351 discloses no particular control or activation of a clutch in order to dampen the amplitude of the disturbing vibrations created in the driveline. Claim 53 recites the feature, "wherein the control and regulating an actuating device via a control line discussed, the only Ranson et al. '351 device (24) is connected to (7) for activating a clutch (4) (31)." As previously mechanism for damping in is the electric motor 13.

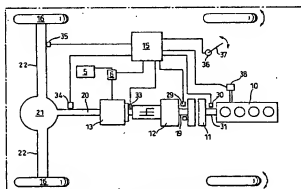


Fig. 1

Arguably, as seen in FIG. 1 of Ranson above there are sensors 29 and 30 disclosed in Ranson et al. '351 on either side of the clutch 11, but, as discussed above these sensors are torque transducers. They may deliver component rotation and torque imparted shear stress data to the controller 15, but again the Applicant can find no disclosure, suggestion or teaching as required to support an anticipation rejection that there is any control of an actuation device for clutch actuation or activation of the clutch in any manner relative to these determined torques or vibration oscillations.

Claims 22-24, 34, 38 and 40 are rejected, under 35 U.S.C. § 102(e), as being anticipated by Evans et al. '850. The Applicant acknowledges and respectfully traverses the raised anticipatory rejection in view of the following remarks.

Evans et al. '850 discloses an electric machine which is mechanically coupled to the engine and is explained in the abstract "...energized in accordance with the inverse of the acceleration component to actively cancel the detected resonance whenever the acceleration component exceeds a noise threshold that also is adjusted based on the estimated natural frequency of the drive train." The Applicant has made a thorough study of Evans et al. '850 and while there is arguably disclosure relating to the electric machine 12 which has a rotor 16 rigidly coupled to engine output shaft 18 for countering any vibrations and resonance in the driveline,, contrary to Examiners assertion on page 10, second paragraph of the Official Action, there is no disclosure, suggestion or teaching relating to the control or regulation of a starting clutch or a gearbox.

While it may be true that the power train control module 30 controls the transmission 14 via line 36, as well as an energization of electric machine 12 via line 38, any counteraction of the amplitude of disturbing vibration is carried out via the electric machine 12, and not via the gearbox transmission 14 as alleged in the Official Action. The Applicant's review has uncovered no discussion, disclosure, suggestion or teaching which discloses that the

transmission or gearbox 14 respectively, are affected in any manner relative to any detected resonance or oscillations. Thus, Applicant believes that the subject matter of new claim 43 based on the combination of the subject matter of previous claims 22 and 24 is not anticipated by the disclosure of Evans et al. '850 and that this new claim 43 is therefore allowable in view of the applied reference.

With respect to claim 38, now combined with the subject matter of previous claim 34 to be new claim 54, similar to previously discussed new claim 50, Evans et al. '850 provides no teaching, disclosure or suggestion of activating a synchronization device or ring in a gearbox. New claim 54 specifically recites the feature, "wherein the control and regulating device (24) is connected to an actuating device (15) for activating a synchronization device (10) in a gear box (8) through a control line (27)." Again, the only disclosure relevant to control and regulating of any component of the driveline in Evans et al. '850 relates to the energization of the electric machine 12. Thus, this feature of the present invention as claimed by the Applicant in new claim 54 is also not disclosed, shown, suggested or taught in any manner by Evans et al. '850.

Claims 22, 23, 27, 34 and 41 are rejected, under 35 U.S.C. § 102(b), as being anticipated by Kolbe et al. '652. The subject matter of these claims is either canceled or subrogated under dependent claim features as discussed above.

Claim 36, now combined with the subject matter of previous claim 34 to produce new claim 53 is rejected, under 35 U.S.C. § 103(a), as being unpatentable over Ranson et al. '351 in view of Schubert et al. '499. The Applicant acknowledges and respectfully traverses the raised obviousness rejection in view of the above amendments and the following remarks.

As the Examiner is aware, in order to properly support a obviousness rejection, the cited references must provide some teaching or disclosure which would lead one of ordinary skill in the art to combine the references as suggested by the Examiner. As previously noted, Ranson et al. '351 includes only torque transducers and neither discloses, teaches or suggests in any

manner, either express or inherent, that a longitudinal accelerometer would be useful or necessary in any event.

Turning to Schubert et al. '499, this reference relates to the stabilization of an aircraft pilot seat via use of an accelerometer. Entirely different from Ranson et al. '351 which is intent upon reducing the resonance and vibrations at its actual source in the driveline, Schubert et al. '499 doesn't care what the source of the vibrations, oscillations etc. are, or where they come from, or even how large they are, but specifically relates to the problem of isolating a body, i.e. the pilot and his/her seat, from any such vibrations and oscillations. This is accomplished by providing an acceleration signal representative of the acceleration of the body and moving the body by an independent actuation means. This essentially self-contained system as shown in Figure 1 for an aircraft pilot seat includes an actuation means that responds to the displacement of the seat and the accelerometer signal so as to keep the body positioned relatively stationary. The actuating means is actually the hydraulic power supply 24 which through a servo-valve 23 rapidly controls a hydraulic fluid flow to provide a load isolation of the seat 12 from the aircraft body 13.

Schubert et al. '499 has no disclosure relevant to amelioration or dampening the vibrations of a vehicle, wheeled or flying as in Ranson et al. '351 and vice versa, and as discussed in detail above, in Ranson et al. '351 there is no disclosure even of any sort of measurement of longitudinal acceleration much less displacement or longitudinal acceleration or isolation of a seat in which the driver is sitting. These references are entirely focused on different solutions to different problems, and in fact solve the problem in entirely different ways with substantially different measurement and actuation systems. [Insert case law]

In any event, if it was possible to combine these references, and Applicant certainly does not believe that this is possible, a combination of Schubert et al. '499 and Ranson et al. '351 would merely provide a self-contained isolation system for the seat itself and would not

interact in any manner with the particular torsional sensors nor even the controller 15 as shown in Ranson et al. '351. Thus, even if these two were combined, it would not show the particular regulating and control of the vehicle, be it an airplane or a wheeled road vehicle via the displacement of the seat as now specifically recited in claim 36.

The Applicant thanks the Examiner for indicating that claims 25, 28-32 and 39 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph. In accordance with this indication, the rejected claims are appropriately revised and rewritten and those new claims are now believed to be allowable.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised anticipation and obviousness rejections should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejections or applicability of the Schubert et al. '499, Evan et al. '850 and Ranson et al. '351 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejections should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.


In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

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The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,



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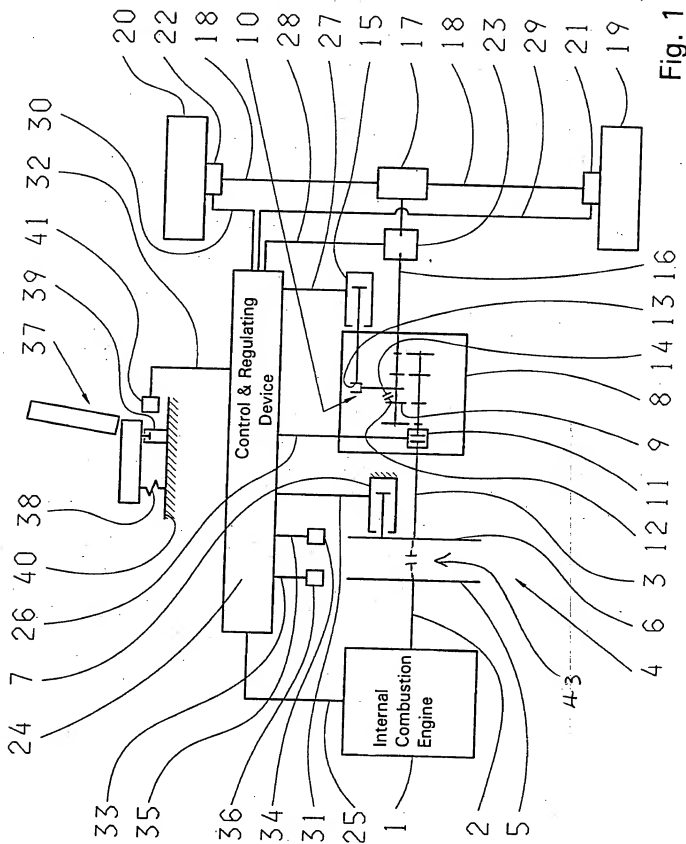
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ANNOTATED DRAWING

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